

APPENDIX B. PROCEDURES FOR BREAK-EVEN ANALYSIS

Appendix B provides procedures for the Break-Even analysis called for in Section 5.7, Maintain the Current Capability.

A Break-Even calculation shows the level of operations (in units produced) at which revenues just cover costs (i.e., neither profit nor loss). The Break-Even volume is computed by dividing fixed costs to produce the product by the contribution margin. The contribution margin is the selling price per unit minus the variable costs per unit, which are assumed to be constant in this discussion.

$$\text{Break-Even} = (\text{Fixed Costs}) / (\text{Contribution Margin})$$

$$\text{Contribution Margin} = \text{Selling Price} - \text{Variable Costs}$$

Where

Fixed costs: Costs that remain constant regardless of changes in the level of production (e.g., supervisors' salaries, lights and heat for the factory);

Variable costs: Costs that vary directly with change in activity (e.g., direct labor and materials used to produce the product);

Contribution margin: Selling price per unit for the product less the variable costs per unit; and

Break-Even (units produced): The level of operations at which there is neither profit nor loss.

Example:

Unit Selling Price	\$91.43
Unit Variable Costs	- <u>\$25.71</u>
Unit Contribution Margin	\$65.72

Fixed Costs \$230,000

$$\text{Break-Even} = \$230,000 / \$65.72 = 3,500 \text{ units}$$

If a company were exiting DoD business for higher returns elsewhere, and had a target profitability (operating income), you would simply add operating income to the numerator in the above equation to determine the amount of business that the Department of Defense would need to provide the company to give the company incentive to remain in the defense business.

$$\frac{\text{Fixed Costs} + \text{Target Operating Income}}{\text{Unit Contribution Margin}} = \frac{\$230,000 + \$20,000}{\$65.72} = 3,804$$

3,804 units needed to produce the target operating income

It may not be possible to prepare a Break-Even analysis using only information from the financial statements. Usually these financial statements do not have clearly distinguished fixed and variable costs, nor do they show unit production data. Hence, this data must be obtained from the contractor. Once obtained, the information can be linked with the financial data for the same period to prepare the Break-Even analysis.

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